

**Claims**

1. An aqueous polymer dispersion comprising a copolymer of anhydride monomer units and vinyl monomer units, which copolymer has been subjected to an  
5 imidization reaction, characterised in that at least 90 mole % of the anhydride monomer units of the copolymer are imidized.
2. An aqueous dispersion as claimed in claim 1, characterised in that the  
10 anhydride monomer content of the copolymer ranges between 5-50 mole %, preferably 5-29 mole % and the vinyl monomer content of the copolymer ranges between 95-50 mole %, preferably 95-81 mole %.
3. An aqueous dispersion as claimed in claims 1 or 2, characterised in that the  
15 copolymer has a molecular weight ranging between 1000-500000 g/mole, preferably between 10000-300000 g/mole, more preferably between 60000-150000 g/mole.
4. An aqueous dispersion as claimed in any one of claims 1-3, characterised in  
20 that the copolymer is a copolymer composition comprising a plurality of copolymers having varying molecular weights.
5. An aqueous dispersion as claimed in any one of claims 1-4, characterised in  
25 that the dispersion has a solid content of more than 20 wt. %, preferably more than 30 wt. %, more preferably more than 40 wt. %.
6. An aqueous dispersion as claimed in any one of claims 1-5, characterised in  
that the polymer dispersion comprises discrete particles having a particle size  
between approximately 30-400 nm, preferably between 30-120 nm.
- 30 7. An aqueous dispersion as claimed in claim 1, characterised in that the copolymer contains maleic anhydride monomer units and styrene monomer units.
8. A method for the production of an aqueous polymer dispersion comprising the steps of

- 1) reacting a starting copolymer of anhydride monomer units and a vinyl monomer units in an aqueous solution of  $\text{NH}_3$  or an amine  $\text{RNH}_2$ ,
- 2) subjecting the thus obtained mixture to an imidization reaction,

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characterised in that the imidization reaction is carried out under reaction conditions which are selected so that at least 90 mole % of the anhydride monomer units have been imidized.

- 10 9. A method as claimed in claim 8, characterised in that the imidization reaction is continued until a degree of imidization of the copolymer of at least 95 mole %, preferably virtually complete imidization, is obtained.

- 15 10. A method as claimed in claim 8 or 9, characterised in that the imidization reaction is carried out in the presence of an alkali salt of an acid functional polymer containing acid functional monomer units and vinyl aromatic monomer units, preferably alkali salt of styrene maleic anhydride copolymer.

- 20 11. A method as claimed in any one of claims 8-10, characterised in that the copolymer has a molecular weight ranging between 1000-500000 g/mole, preferably between 10000-300000 g/mole, more preferably between 60000-150000 g/mole.

- 25 12. A method as claimed in any one of claims 8-11, characterised in that  $\text{NH}_3$  or  $\text{RNH}_2$  is added in such an amount that the ratio  $\text{NH}_3$  or amine : anhydride monomer in the starting copolymer is between 0.5-10:1.

- 30 13. A method as claimed in any one of claims 8-12, characterised in that the molar ratio between the amine or  $\text{NH}_3$  and the anhydride monomer in the copolymer ranges between 1.2-0.8:1, preferably slightly under the equimolar ratio.

14. A method as claimed in any one of claims 8-13, characterised in that in the course of the imidization reaction, the reaction mixture is stirred so as to minimise adhesion of the reaction mixture to the reactor wall.

15. A method as claimed in any one of claims 8-14, characterised in that the imidization reaction is carried out at a temperature above 100°C, preferably between 120-195°C, more preferably at a temperature between 150-175°C.

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16. An aqueous coating composition for coating a product to be imprinted, characterised in that the coating composition contains a polymer dispersion as claimed in any one of claims 1-7 or a polymer dispersion obtained with the method of any one of claims 8-15.

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17. An aqueous coating composition according to claim 16, further containing binders, conventional pigments and, optionally, additives.

18. Use of a polymer dispersion as claimed in any one of claims 1-7 or a polymer dispersion obtained with the method of any one of claims 8-15 for coating a surface to be imprinted.

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19. Use as claimed in claim 18, characterised in that the surface is paper, paperboard, cardboard, organic film e.g. polyethylene film, metal or textile.

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